INCH-POUND

MIL-PRF-1/1204H
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SUPERSEDING
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29 June 1999

PERFORMANCE SPECIFICATION SHEET

ELECTRON TUBE, CATHODE RAY
TYPE 1DP1

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the electron tube described herein shall consist of this document and the latest issue of MIL-PRF-1.

DESCRIPTION: Miniature 1-inch, electrostatic deflection and focus.

PIN CONNECTIONS AND DIMENSIONS. See figure 1.

ABSOLUTE RATINGS:

Parameter:	Ef	Ec1	Ed	Eb1	Eb2	Rg	Zd	Rd	Alt
Unit:	V	V dc	V	V dc	V dc	MegΩ	MegΩ	MegΩ	ft
Maximum:	6.9	0, -100	400	300	1,000	2	2	2	60,000
Minimum:	5.7	---	---	---	---	---	---	---	---
Test conditions:	6.3	Adjust	---	Focus	800	---	---	---	---

See footnotes at end of table I.

GENERAL:

First article inspection: Required. 4/

TABLE I. Testing and inspection.

Inspection	MIL-STD-1311 Method	Notes	Conditions	Symbol	Limits		Unit
					Min	Max	
Conformation inspection, part 1							
Voltage breakdown	5201	---		---	---	---	---
Voltage breakdown (electrostatic types)	5201	---		---	---	---	---
Bulb, screen, and face-plate quality	5106	---		---	---	---	---
Modulation	5223	---	Light = 5 fL	ΔEc	---	40	V dc
Spot position (electro-static deflection)	5231	---		Disp1	---	4	mm
Grid cutoff voltage	5241	---		Ec1	---	-95	V dc
Grid No. 1 leakage current	5251	---		---	---	5	μA dc
Anode No. 2 leakage current	5251	---		---	---	15	μA dc
Gas "cross"	5206	1/	Light = 5 fL	---	---	---	---
Spot displacement (leakage)	5231	---		Disp1	---	3	mm
Light output	5221	2/		Light	5	---	fL
Conformance inspection, part 2							
Heater current	1301	---		If	180	220	mA dc
Stray light emission (conventional types)	5216	---	Eb2 = 1,000 V dc	---	---	---	---
Line width A (electrostatic deflection)	5226	---	Ik = 50 μA dc, 12 lines	Width	---	0.25	mm
Line width B (electrostatic deflection)	5226	---	Ik = 50 μA dc, 12 lines	Width	---	0.35	mm
Electrode current (anode No. 1)	5201	---		Ib1	-10	+10	μA dc
Electrode current (cathode)	5201	---	Light = 5 fL	Ik	---	1	mA
Deflection factor	5248	---	ID2	DF	350	450	V dc/inch
Deflection factor	5248	---	3D4	DF	250	350	V dc/inch
Angle between traces	5101	---		---	---	---	---
Focusing voltage at cutoff	5246	---		Eb1	175	275	V dc
Base alignment (electrostatic types)	5101	---	ID2 between pin numbers 2 and 3	---	---	---	---
Permanence of marking	1105	---		---	---	---	---

See footnotes on next page.

TABLE I. Testing and inspection - Continued.

Inspection	MIL-STD-1311 Method	Notes	Conditions	Symbol	Limits Min	Limits Max	Unit
Conformance inspection, part 3							
Life test	---	---	Group C; Eb2 = 800 V dc; t = 500 hours minimum; light = 5 fL	---	---	---	---
Life test end points:	---						
Grid No. 1 leakage current	5251	---		---	---	5	µA dc
Anode No. 2 leakage current	5251	---		---	---	15	µA dc
Stray light emission (conventional types)	5216	---		---	---	---	---
Line width A	5226	---		Width	---	0.50	mm
Line width B	5226	---		Width	---	0.75	mm
Modulation	5223	---		ΔEc	---	50	V dc
Light output	5221	2/		Light	4	---	fL
Cathode illumination	5216	3/		---	---	---	---
Barometric pressure, reduced	1002	3/	54 ± 5 mmHg	---	---	---	---
Pressure	1141	3/		---	---	---	---
Direct-interelectrode capacitance	1331	3/	k to all	Ck	---	2.5	pF
			g1 to all	Cg1	---	5	pF
			D1 to D2	C1D2	---	1.25	pF
			D3 to D4	C3D4	---	1	pF
			D1 to all	CD1	---	3	pF
			D2 to all	CD2	---	4	pF
			D3 to all	CD3	---	3	pF
			D4 to all	CD4	---	3	pF
Vibration	5111	3/		Width	---	1.0	mm
Shock	5115	3/		---	---	---	---
Base strain	1121	3/		---	---	---	---

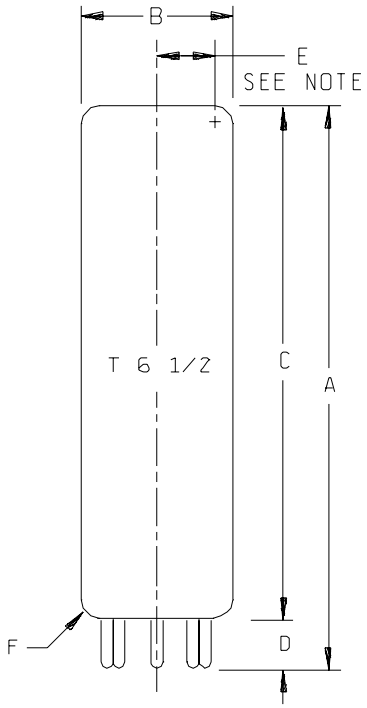
1/ This test is to be performed at the conclusion of the holding period.

2/ The light output shall be taken using a .500 by .500 inch (12.7 by 12.7 mm) raster of 35 to 105 lines and 60 frames per second. Ik = 500 µA dc.

3/ This test shall be performed during the initial production and once each succeeding 12-calendar months in which there is production. An accept on zero defect sampling plan shall be used, with sample of three tubes with an acceptance number of zero. In the event of failure, the test will be made as a part of conformance inspection, part 2, with an acceptance level of 6.5 (see 5/). The regular "12-calendar month" sampling plan shall be reinstated after three consecutive samples have been accepted.

4/ First article inspection shall consist of performing all tests listed in this tube specification sheet. The sample size and allowable defects shall be in accordance with MIL-PRF-1, qualification, samples, and acceptance criteria. Three copies of the test report (see MIL-HDBK-831) shall be forwarded to the purchasing activity for evaluation by the preparing activity. Invitation for bids should provide that the preparing activity reserves the right to waive the requirements for first article samples as to those bidders offering a product which has been previously acquired or tested by the Government, and that bidders offering such products who wish to rely on such production or test, must furnish evidence with the bid that prior Government approval is presently appropriate for the pending acquisition.

5/ This specifiction sheet uses accept on zero defect sampling in accordance with MIL-PRF-1, table III.



Ltr	Dimensions			
	Inches		Millimeters	
	Min	Max	Min	Max
Qualification inspection				
F	Base: E9-1 except for pin length			
Conformance inspection, part 2				
A	2.917	3.004	74.09	76.30
B	.750	.875	19.05	22.23
C	2.687	2.749	68.25	69.82
D	.230	.255	5.84	6.48
E	.350	---	8.89	---

Pin No	Element
1	Grid No. 1
2	Deflector plate D1
3	Deflector plate D3
4	Heater
5	Heater cathode
6	Deflector plate D2
7	Anode No. 2
8	Anode No. 1
9	Deflector plate D4

NOTE: Useful screen radius.

FIGURE 1. Outline drawing of electron tube type 1DP1.

NOTES

Referenced documents. In addition to MIL-PRF-1, this specification sheet sheet references MIL-STD-1311 and MIL-HDBK-831.

Changes from previous issue. The margins of this specification are marked with vertical lines to indicate where changes from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the previous issue.

Custodians:
Army - CR
Navy - EC
Air Force - 11
DLA - CC

Preparing activity:
DLA - CC

(Project 5960-3721)

Review activities:
Navy - AS, CG, MC, OS, SH
Air Force - 99

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at www.dodssp.daps.mil.